



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,580	07/21/2003	Yasushi Sugaya	826.1881	4700
21171	7590	10/20/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			HUGHES, DEANDRA M	
			ART UNIT	PAPER NUMBER
			3663	

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,580

Applicant(s)

SUGAYA ET AL.

Examiner

Deandra M. Hughes

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 25 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The communication to the Examiner (dated 9/2/2005) has been received and entered. The application numbers on all of the submitted Information Disclosure Statements (IDSs) have been corrected.
2. The IDSs filed on 7/21/03, 7/27/05, 8/19/05, and 9/2/05 have been considered by the examiner and is found to be cumulative to the art of record.
3. The IDSs that have been lined through are merely duplicates of IDSs already considered.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3, 5, 10, 14-15, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsuzaki (US 6,775,055 filed Jul. 20, 2001).

****The references made herein are done so for the convenience of the applicant.**

They are in no way intended to be limiting. The prior art should be considered in its entirety.

With regard to claim 1, Tsuzaki discloses a Raman optical amplifier (fig. 9) that amplifies multi-wavelength light, comprising:

- an optical amplification medium (#51) into which the multi-wavelength light is inputted;
- a pumping light source (#53₂) supplying pumping light to said optical amplification medium;
- an auxiliary light source (#53₁) generating auxiliary light with a wavelength shorter than a center wavelength of the multi-wavelength light (figs. 5A-5D);
- an optical device (#52₁) guiding the auxiliary light to said optical amplification medium in the same direction ((#53₁ is co-propagating)) as that of the multi-wavelength light;
- and an auxiliary light controller (#54) controlling the optical power of the auxiliary light based on the input power (#56₁) of the multi-wavelength light.

With regard to claim 17, Tsuzaki discloses a Raman optical amplifier (fig. 9) that amplifies multi-wavelength light, comprising:

- an optical amplification medium (#51) into which the multi-wavelength light is inputted;
- a forward pumping light source (#53₁) supplying forward pumping light to said optical amplification medium;

Art Unit: 3663

- a backward pumping light source (#53₂) supplying backward pumping light to said optical amplification medium;
- and a controller (#54) controlling the optical power of the forward pumping light based on the input power of the multi-wavelength light.

With regard to claim 3, the pumping light is counter-propagating.

With regard to claims 5 and 10, Tsuzaki is directed towards Raman amplifier gain flattening (e.g. see abstract).

With regard to claims 14-15, the phrase beginning with, "is set to an amount..." is essentially a method limitation or a statement of intended or desired use. This claim, as well as other statements of intended use, does not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzaki (US 6,775,055 filed Jul. 20, 2001) in view of Okuno (US 5,966,236 published Oct. 12, 1999).

With regard to claim 12, Tsuzaki discloses a Raman optical amplifier (fig. 9) that amplifies multi-wavelength light, comprising:

- an optical amplification medium (#51) into which the multi-wavelength light is inputted;
- a pumping light source (#53₂) supplying pumping light to said optical amplification medium;
- an auxiliary light source (#53₁) generating auxiliary light with a wavelength shorter than a center wavelength of the multi-wavelength light (figs. 5A-5D);
- an optical device (#52₁) guiding the auxiliary light to said optical amplification medium in the same direction (#53₁ is co-propagating) as that of the multi-wavelength light;
- a detector (#56₁) detecting the input light;

Art Unit: 3663

- and an auxiliary light controller (#54) controlling the optical power of the auxiliary light based on the change of the wavelength arrangement of the plurality of segments of signal light detected by said detector (control section #54 takes an input from #56₁).

Tsuzaki does not specifically disclose the detector detecting power wavelength arrangement of a plurality of segments of signal light included in the multi-wavelength light. However, Okuno teaches an input channel count detector as a function of the input light (fig. 8, #19). It would have been obvious to one of ordinary skill (e.g., an optical engineer) in the art at the time the invention was made to analyze the input power as a function of the channel count, i.e. wavelength arrangement, for the advantage of flattening the gain of the amplifier.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzaki (US 6,775,055 filed Jul. 20, 2001).

Tsuzaki does not specifically disclose that the auxiliary light and the pump have the same wavelength. However, Tsuzaki teaches that one may optimize gain of a particular channel by appropriately setting the pump wavelength (col. 1, line 34). The auxiliary light is merely another pumping light. It would have been obvious to one of ordinary skill (e.g., an optical engineer) in the art at the time the invention was made to set the pump wavelength and the auxiliary light wavelength equal for the advantage of increasing gain the in the channel one Stoke's shift away from the pump light.

Art Unit: 3663

9. Claims 4, 6-9, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzaki (US 6,775,055 filed Jul. 20, 2001) in view of Lelic (US 6,943,937 filed May 17, 2001).

With regard to claims 4 and 6-9, Tsuzaki does not specifically disclose changing the power of the auxiliary light with a prescribed response time base don the change of input power of the WDM signal. However, Lelic teaches gain controllers with sub-controllers (fig. 2A, #231 and #232; col. 10, lines 30-35) for adjusting the response time of the pump controllers. It would have been obvious to one of ordinary skill (e.g., an optical engineer) in the art at the time the invention was made to apply the sub-controllers of Lelic to the pump control of the Tsuzaki for the advantage of minimizing the impact of add/dropping signal channels.

With regard to claim 11, Tsuzaki does not specifically disclose a storage unit storing pattern information. However, Tsuaki discloses the storage of channel count information in the controller (col. 5, lines 1-10). It would have been obvious to one of ordinary skill (e.g., an optical engineer) in the art at the time the invention was made to store a look-up table in the controller for the advantage of driving the pump power at optimal conditions for gain flattening.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzaki (US 6,775,055 filed Jul. 20, 2001) in view of Ziari (US 6,522,796 filed Oct. 24, 2000).

Tsuzaki does not specifically disclose a depolarizer for depolarizaing the auxiliary light. However, Ziari teaches depolarization of pump lights for Raman amplifiers (e.g. #220). It would have been obvious to one of ordinary skill (e.g., an optical engineer) in

Art Unit: 3663

the art at the time the invention was made to depolarizer the auxiliary light for the advantage of reducing polarization dependent gain.

Drawings

11. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Conclusion

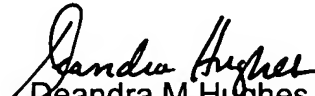
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M. Hughes whose telephone number is 571-272-6982. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art. Unit: 3663

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Deandra M Hughes
Examiner
Art Unit 3663